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TESTIMONY TO AMEND RASIED BILL 1114
PROPOSED REVISION OF HIGH TIDE LINE AND TIDAL WETLANDS DEINITIONS

John J. Doody, PS & PE
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January 28, 2011
Revised March 4, 2011

Summary

The intent of the proposed language is to make technical changes to definitions of the Department of Environmental Protections's High Tide Line definition, and a minor technical deletion in Tidal Wetland definition, to conform with federal tidal data and definitions, and best practices of surveying. This document speaks in support of changes to the High Tide Line definition with a recommended amending of language changes for Sec. 22a-359(c) for ease of HTL determination while insuring DEP authority over the shoreline at existing enforcement elevations. **This document does not support the changes brought forward in the rasied Bill 1114, which would have the effect of lowering DEP's enforcement limit by over a foot, no no apparent reason**. Recommended amendments to the bill are contained within this document.

General Legislative Changes

22a-29(2) remove references to 1' above local extreme high water, use vegetation as the guide. **Local extreme high water is a highly uncertain measurement**, therefore it is much more subjective than using vegetation to define tidal wetlands. This change would put soil and vegetation scientists, rather than surveyors in the decision making role for tidal wetlands determinations.

22a-30 same

22a-359(c) "high tide line." **The intent of our proposed language is to tie the DEP "high tide line" to the latest approved NOAA tidal epoch, at or above present elevations enforced by DEP.** The effect of this language change will be to allow DEP's "high tide line" to rise with approved NOAA epoch changes and increased amplitude of mean high water. The present language is a confusing mix of physical marks on the beach, wording supporting predicted tides, and references to storms which are uncertain. All tidal definitions approved by NOAA use predicted tides only, no storms. Legislation should conform to federal guidelines and standards. As surveyors we are the experts in measuring. We need to be able to place the high tide line in an accurate, efficient and easily determined manner. The present system of determinations by DEP are are based on a 1988 Coast Guard Study of Long Island Sound, that is based on data collected between 1960 and 1978, and published in the 1980 tidal epoch data. NOAA has published a new 2001 epoch, based on tidal data measured between 1980 and 2001. Both DEP and CALS need to rely upon the research and data from NOAA to make tidal determinations, the tide has rison 0.16' since the 1988 Coast Guard study.

This document proposed amended language is intended to hold HTL elevations at or above present DEP elevations, and tying the line to a set height above mean high water, based on measurements taken along the entire Connecticut shoreline and tidal rivers.

Specific Language Changes

Sec. 22a-29. (Formerly Sec. 22-7i). Definitions. The following words and phrases, as used in sections 22a-28 to 22a-35, inclusive, shall have the following meanings:

(2) "Wetland" means those areas which border on or lie beneath tidal waters, such as, but not limited to banks, bogs, salt marsh, swamps, meadows, flats, or other low lands subject to tidal action, including those areas now or formerly connected to tidal waters, [and whose surface is at or below an elevation of one-foot above local extreme high water]; and upon which may grow or be capable of growing...

Sec. 22a-30. (Formerly Sec. 22-7j). Inventory and inspection of tidal wetlands. Regulations. (a) The commissioner or his authorized representative shall have the right to enter upon any public or private property at reasonable times to carry out the provisions of sections 22a-28 to 22a-35, inclusive. The commissioner may make an inventory of all tidal wetlands within the state. The boundaries of such wetlands shall be shown on suitable reproductions or aerial photographs to a scale of one inch equals two hundred feet with such accuracy that they will represent a class D survey. [Such lines shall generally define the areas that are at or below an elevation of one foot above local extreme high water]. Such maps shall be prepared to cover entire subdivisions of the state as...

Sec.22a-359. (Formerly Sec. 25-7b).
Regulation of dredging and erection of structures and placement of fill in tidal, coastal or navigable waters. Sunken or grounded vessels. (a) The Commissioner of Environmental Protection shall regulate dredging and the erection of structures and the placement of fill, and work incidental thereto, in the tidal, coastal or navigable waters of the state waterward of the high tide line. Any decisions made by the commissioner pursuant to this section shall be made with due regard for indigenous aquatic life, fish and wildlife, the prevention or alleviation of shore erosion and coastal flooding, the use and development of adjoining uplands, the improvement of coastal and inland navigation for all vessels, including small craft for recreational purposes, the use and development of adjacent lands and properties and the interests of the state, including pollution control, water quality, recreational use of public water and management of coastal resources, with proper regard for the rights and interests of all persons concerned.
(b) After consultation with the Commissioner of Transportation, the Commissioner of Environmental Protection may consider any sunken or grounded vessel, scow, lighter or similar structure lying within the tidal, coastal or navigable waters of the state to be an encroachment subject to the provisions of this section and sections 22a-360 to 22a-363, inclusive.
(c) As used in this section and sections 22a-360 to 22a-363, inclusive, "high tide line" means 1.80' above mean high water, in the latest tidal epoch approved by NOAA. [means a line or mark left upon tide flats, beaches, or along shore objects that indicates the intersection of the land with the water's surface at the maximum height reached by a rising tide. The mark may be determined by (1) a line of oil or scum along shore objects, (2) a more or less continuous deposit of fine shell or debris on the foreshore or berm, (3) physical markings or characteristics, vegetation lines, tidal gauge, or (4) by any other suitable means delineating the general height reached by a rising tide. The term includes spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.]

ATTACHMENTS

1. Picture of Tidal Lines, Avery Point Campus, Uconn, Groton, CT 2008
2. Table of HTL elevations showing present DEP and proposed CALS elevations
3. Beach Elevation Profile Table Western Long Island Sound

4. Beach Elevation Profile Table West Central Long Island Sound
5. Beach Elevation Profile Table Eastern Long Island Sound
6. Letter to Office of Long Island Sound Programs, February 28, 2011

ATTACHMENT 1

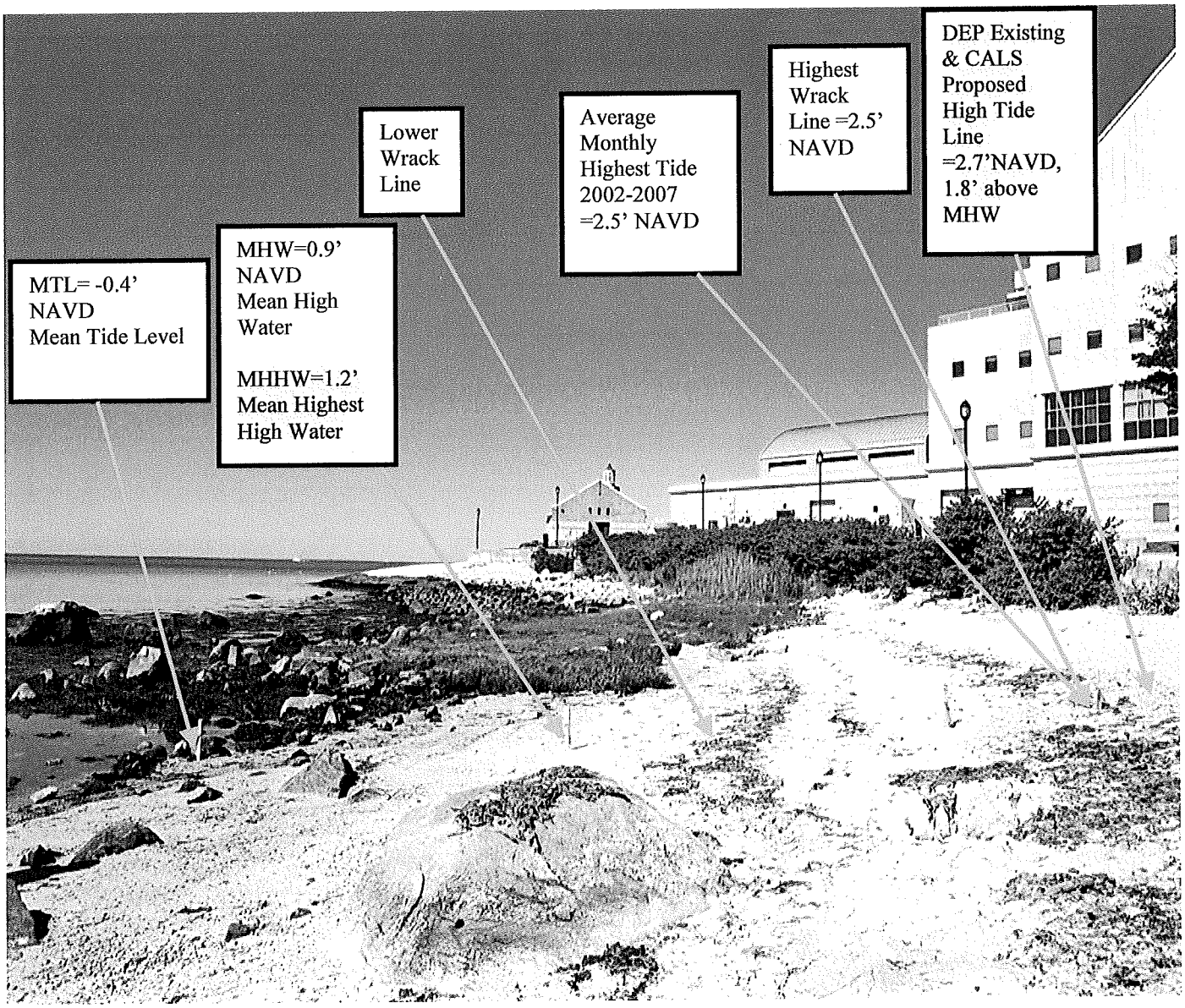


Image adapted from: J. Doody. 2008. A *Seaweed Safari Along Connecticut's Shore, Elevation Evidence of Natural Phenomena in the Supralittoral & Intralittoral, New London harbor, Connecticut.* CDOT, Unpublished. Beach at Avery point Campus, Uconn, Groton, CT showing tidal elevations staked.

ATTACHMENT 2

Community	*MHW NAVD NAVD (feet)*	*PROPOSED HTL HEIGHT ABOVE MHW (feet)*	*PROPOSED HTL ELEVATION NAVD (feet)*	*USACE 1Yr Freq. Profile NAVD (feet) equals DEP Existing HTL*	*Difference Proposed HTL Vs. Existing HTL*
Greenwich	3.4	1.8	5.2	4.9	+0.3'
Stamford	3.4	1.8	5.2	4.6	+0.6'
Darien	3.4	1.8	5.2	4.6	+0.6'
Norwalk	3.3	1.8	5.1	4.6	+0.5'
Westport	3.3	1.8	5.1	4.6	+0.5'
Fairfield	3.2	1.8	5.0	4.6	+0.4'
Bridgeport	**3.1**	1.8	**4.9**	**4.6**	**+0.3'**
Stratford	3.0	1.8	4.8	4.6	+0.2'
Milford	2.9	1.8	4.7	4.5	+0.2'
West Haven	2.8	1.8	4.6	4.4	+0.2'
New Haven	**2.8**	1.8	**4.6**	**4.4**	**+0.2'**
East Haven	2.7	1.8	4.5	4.4	+0.1'
Branford	2.7	1.8	4.5	4.3	+0.2'
Guilford	2.3	1.8	4.3	4.1	+0.2'
Madison	2.2	1.8	4.0	3.9	+0.1'
Clinton	2.0	1.8	3.8	3.6	+0.2'
Westbrook	1.8	1.8	3.6	3.6	+0.0'
Old Saybrook	1.5	1.8	3.3	3.2	+0.1'
Old Lyme	1.1	1.8	2.9	2.9	+0.0'
East Lyme	1.0	1.8	2.8	2.8	+0.0'
Waterford (Niantic)	0.9	1.8	2.7	2.7	+0.0'
New London	**0.9**	1.8	**2.7**	**2.7**	**+0.0'**
Groton	0.9	1.8	2.7	2.7	+0.0'
Stonington (Mystic)	0.9	1.8	2.7	2.7	+0.0'

Data taken from spreadsheet "CDOT_TIDAL_DATA_LEG2011.xls". prepared by Jay Doody, PE & PS Feb. 2011.

ATTACHMENT 3

SUMMARY TABLE ELEVATIONS OF OBSERVATIONS NAVD 88 WESTERN SOUND (Greenwich to Bridgeport) Data collected in Greenwich, Stamford, Norwich, Westport, Fairfield, Bridgeport			
ELEVATION	**STANDARD DEVIATION**	**DESCRIPTION**	**COMMENTS**
6.0'	±0.5'	Average annual high tide, 2002-2007	From NOAA tide station 8467150
5.2'	±0.5'	Average monthly high tide, 2002-2007	From NOAA tide station 8467150 & 8516934
5.1'	0.0'	'1.8' above Mean High Water	CALS Proposed HTL
5.1'	±0.5'	Wrack line	6 samples
4.6'	0.0'	Existing DEP HTL	Existing
4.1'	±0.4'	Blue green algae	27 samples
3.6'	±0.1'	Mean Highest High Water (MHHW)	Raised bill 1114 HTL
3.3'	±0.1'	Mean High Water (MHW)	From 7 NOAA tide stations and 2 CDOT tide stations
3.2'	±0.6'	Stone hair	12 samples
0.4'	±1.3'	Rock weed	3 samples
-0.2'	±0.0'	Mid Tide Level (MTL)	From 7 NOAA tide stations and 2 CDOT tide stations

Table 1. Summary of Observations and Standard Deviations for the Western Sound. Updated from *Report and Recommendations for the Establishment of Tidal Boundary and Regulatory Lines on CDOT Survey Projects*, September 23, 2009, Jay Doody, PE & PS, unpublished

ATTACHMENT 4

SUMMARY TABLE ELEVATIONS OF OBSERVATIONS NAVD 88 WEST CENTRAL SOUND (Stratford to Branford) Data collected in Milford, West Haven, New Haven, Branford			
ELEVATION	**STANDARD DEVIATION**	**DESCRIPTION**	**COMMENTS**
5.6'	±0.4'	Average annual high tide, 2002-2007	From NOAA tide station 8465705
4.7'	±0.5'	Average monthly highest high tide, 2002-2007	From NOAA tide station 8465705
4.6'	0.0'	'1.8' above MHW	CALS Proposed HTL
4.5'	±0.9'	Wrack line	18 samples
4.5'	0.0'	Existing DEP HTL	Existing
3.9'	±0.4'	Blue green algae	25 samples
3.1'	±0.1'	Mean Highest High Water (MHHW)	Raised bill 1114 HTL
2.8'	±0.1'	Mean High Water (MHW)	From 6 NOAA tide stations and 1 CDOT tide stations
2.5'	±0.5'	Stone hair	17 samples
1.6'	±0.8'	Rock weed	17 samples
-0.3'	±0.0'	Mid Tide Level (MTL)	From 6 NOAA tide stations and 1 CDOT tide stations

Table 2. Summary of Observations and Standard Deviations for the West Central Sound. Updated from *Report and Recommendations for the Establishment of Tidal Boundary and Regulatory Lines on CDOT Survey Projects*, September 23, 2009, Jay Doody, PE & PS, unpublished

ATTACHMENT 5

SUMMARY TABLE ELEVATIONS OF OBSERVATIONS NAVD 88 (Waterford to Stonington) Data collected in New London and Groton			EASTERN SOUND
ELEVATION	**STANDARD DEVIATION**	**DESCRIPTION**	**COMMENTS**
3.7'	±0.5	Average annual high tide, 2002-2007	From NOAA tide station 8461490
3.0'	±0.6'	Beach grass	4 samples
2.7'	0.0'	'1.8' above MHW & DEP Exisitng HTL	Existing Matches Proposed
2.5'	±0.6'	Average monthly highest high tide, 2002-2007	From NOAA tide station 8461490
2.2'	±0.4'	Wrack line	9 samples
1.65'	±0.25'	Blue green algae	12 samples
1.6'	±0.5	Common reed	4 samples
1.2'	±0.1'	Mean Highest High Water (MHHW)	Raised bill 1114 HTL
1.0'	±1.4'	Jesuit's bark	2 samples
0.9'	±0.0'	Mean High Water (MHW)	From NOAA tide station 8461490
0.6'	±0.4'	Stone hair	8 samples
0.2'	±0.4'	Salt cord grass	3 samples
0.1'	±0.3'	Rock weed	6 samples
-0.4'	±0.0'	Mid Tide Level (MTL)	From NOAA tide station 8461490

Table 3. Summary of Observations and Standard Deviations for the Eastern Sound. Updated from *Report and Recommendations for the Establishment of Tidal Boundary and Regulatory Lines on CDOT Survey Projects*, September 23, 2009, Jay Doody, PE & PS, unpublished

ATTACHMENT 6

John J. Doody, PE & PS
49 Arlington Street
West Haven, CT 06516

Mr. Brian Thompson, Director
Office of Long Island Sound Programs
Bureau of Water Protection & Land Reuse
DEP
79 Elm Street
Hartford, CT 06106-5127

February 28, 2011

SUBJECT: NEW DEP HIGH TIDE DEFINITION

Dear Mr. Thompson;

The Connecticut Association of Land Surveyors is proposing a revision of the DEP High Tide line this year in the legislature. Our proposal is along the lines of what we discussed in presentations to your office back in 2008. After, we submitted this proposal to the legislature last month, we sat down with our data and looked to see what could be done to make sure that the elevations proposed were at least to the level that DEP presently enforces to, yet would be easy for us to determine and for you to enforce.

In looking at our tidal data we discovered that holding a height 1.80' above mean high water will give you the elevations you need in the eastern sound, while essentially holding the highest predicted tide 1983-2007 in the central and western sound, which is at a higher elevation than you presently enforce to. We would like to amend our proposal for changing Sec. 22a-359(c) to be 1.80' above MHW with the following language:

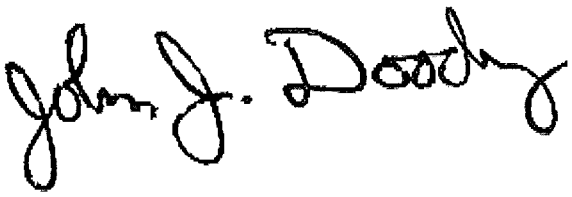
(c) As used in this section and sections 22a-360 to 22a-363, inclusive, "high tide line" means 1.80' above mean high water, in the latest tidal epoch approved by NOAA.

Our intent is to make this a technical change that does not take away from any of the shoreline that you presently enforce to, and that allows for future changes in mean sea level (and mean high water) as determined by NOAA. This new definition is based on water elevation rather than a land based datum. By basing DEP's HTL on Mean High Water (MHW), not only will this allow for future rising in mean sea level, but also increasing severity of tides; MHW may rise even more than mean sea level. This height above MHW is also intended to be valid for all tidal rivers.

I am attaching with this letter a table of elevation comparsions for shoreline towns that shows the elevations based on our proposed HTL and what we believe are your HTL elevations based on the 1 year frequency flood in the US Army Corps of Engineers 1988 profile of Long Island Sound. Other supporting documents also show the effect of our proposed HTL in relation to wrack lines, etc...

My apologies for the short time line in communicating with your office, I would be happy to discuss this proposal with someone in your office. I understand that public hearings might be held on March 7 or 14, and I would be happy to meet with your representatives at the LOB as well. I can be reached at 203-933-3850.
I am attaching a copy of the material that I will present at the public hearing on this legislative change.

Yours truly,



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